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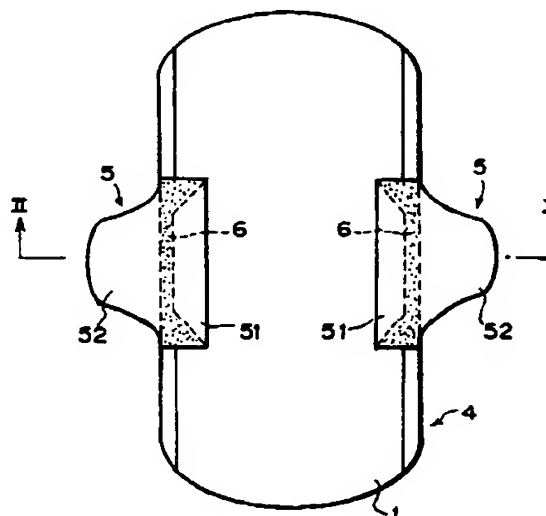
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### 54 Absorbent Product.

57 An absorbent product such as a sanitary napkin which comprises an absorbent body (4) including an absorbent material (3) disposed between a liquid-permeable top sheet (1) and a liquid-impermeable back sheet (2), and a pair of pieces (5), which comprise a first portion (51) forming a side barrier disposed on the top sheet of the absorbent body and a second portion (52) extending outwardly from the longitudinal side edge of the absorbent body so as to provide wings. The piece is secured to the side edge of the absorbent body along the connecting zone (6) at the boundary between the first and second portions, thereby forming a side barrier for preventing lateral leakage.

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## BACKGROUND OF THE INVENTION

The present invention relates to an absorbent product, such as a sanitary napkin, which is worn in contact with the skin of the wearer for the purpose of absorption of body liquids and, more particularly, to an absorbent product equipped with a wing for fixing to an underwear of the wearer.

There have been widely used such type of absorbent products for sanitary napkins provided with a pair of wings which are used to fixedly attach the napkin to an underwear, for the purpose of preventing displacement from the desired position while being worn.

Such type of the winged absorbent product in described in, for example, Japanese laid-open patent application No. Hei 3-176050. The well known product comprises a liquid-impermeable back sheet and a liquid-permeable top sheet, between which a layer of a absorbent material is accommodated, and a pair of wings formed by projecting part of the back sheet at both sides thereof in a desired form.

On the other hand, in order to prevent a so-called lateral leakage of the body liquid, that is, undesirable leakage of the body liquid out of the longitudinal side edges of the absorbent product when the excessive body liquid is supplied, it has been well known to provide a pair of side barrier members disposed so as to enclose the longitudinal edge portions on both sides of the absorbent product (see Japanese laid-open U.M. application No. Hei 3-88511). The side barrier members are provided by adhering liquid-impermeable sheets to both sides of the absorbent product over its entire length.

However, in the foregoing conventional winged absorbent product, it is necessary to adhere a band-shaped liquid-impermeable sheet prepared independently of the wings above the top sheet of the absorbent body, thereby causing the production process complicated. In addition, the cut out portion of the blank sheet material out of the barrier members cannot be used and wasted thereby to cause increase in the cost of the product.

## SUMMARY OF THE INVENTION

According to the present invention, there is provided an absorbent product comprising:

- an absorbent body comprising a liquid-permeable top sheet a liquid-impermeable back sheet and an absorbent material accommodated between said top and back sheets; and

- a pair of pieces comprising a liquid-impermeable sheet and disposed on the top sheet at both side edges of the absorbent body;

- each of the pieces comprising a first portion

disposed on the top sheet and extending along part of the both side edges of the absorbent body to form a side barrier and a second portion extending outwardly from the longitudinal side edges to form a wing, and being secured to the absorbent body at a connecting line extending along the boundary between the first and second portions.

In the absorbent product according to the present invention, the wings and the side barrier members are made of the same piece. Each of the portions protruding outwardly from the longitudinal side edges of the absorbent body functions as wings, and the portion lying inwardly of the longitudinal side edge of the absorbent body functions as the side barrier member. It should be noted that the side barrier members are formed at the restricted portions of the entire length of the absorbent body.

Therefore, the absorbent product of the present invention can be manufactured in a more simple production process as compared with the conventional absorbent product in which the wings and the side barrier members are separately provided. In addition, the barrier portion lies only at the portion which is necessary to prevent lateral leakage of the body liquid, and the waste of material can be eliminated.

In a preferred embodiment of the present invention, the side barrier members are provided so as to extend from the central portion of the absorbent body rearward. Thus, rearward leakage as well as the lateral leakage of the body liquid can be prevented.

The side barrier members may be provided with an elastic material attached to the edge portion thereof, so that its edge portion may be closely attached to the wearer's body. However, if the sheet constituting the side barrier members are made of a suitable stretchable material, then the both ends thereof can be joined to the absorbent body with this portion stretched to eliminate the attachment of the elastic body. In any case, the wing members will stand upright, and perform a function of preventing the "lateral leakage".

Furthermore, according to the present invention, as compared with the conventional product wherein each wing and side barrier are formed in separate parts, the production process is greatly simplified and the productivity is improved, thereby reducing the production costs. In addition, the material to be wasted can be greatly decreased, which also leads itself to the reduction of cost.

Other features and advantages of the present invention will become readily apparent from the following detailed description with reference to the accompanying drawings.

## BRIEF DESCRIPTION OF THE DRAWINGS

FIGURE 1 illustrates in plan an absorbent product embodying the present invention as viewed from the top sheet;

FIGURE 2 is a cross-sectional view taken along the line II-II in FIGURE 1;

FIGURE 3 is a plan view showing another absorbent product embodying the present invention as viewed from the top sheet;

FIGURE 4 is a plan view, as viewed from the top sheet, of another absorbent product embodying the present invention;

FIGURE 5 is an enlarged cross-sectional view taken along the line V-V in FIGURE 4;

FIGURE 6 illustrates part of a continuous sheet from which pieces for the wings of the product of FIGURE 1 are cut out along the cutting lines; and

FIGURE 7 illustrates part of a continuous sheet from which pieces for the wings of the product of FIGURE 4 are cut out along the cutting lines.

## DESCRIPTION OF THE PREFERRED EMBODIMENTS

In FIGURES 1 and 2, an absorbent product embodying the present invention, which is formed for a sanitary napkin, comprises an absorbent body 4 joining a top sheet 1 of a liquid-permeable sheet and a back sheet 2 of a liquid-impermeable sheet, both having substantially same shape. The top and back sheets are connected together along the peripheral edges thereof, between which an absorbent body 3 is accommodated. A pair of pieces 5 are disposed above the top sheet 1 and attached to the body 4 at the connecting area or zone 6 by means of adhering or welding.

Each piece 5 comprises a first portion 51 laid on a top sheet 1 of the absorbent body 4 and a second portion 52 extending outwardly from the longitudinal side edge of the absorbent body 4, and secured to the absorbent body 4 at the connecting zone 6. Preferably, the connecting zone 6 extends along the longitudinal side edge of the absorbent body 4 at the boundary portion between the first and second portions 51 and 52, with leaving a portion which is not connected to the absorbent body at the free end of the first portion 51.

Therefore, the first portion 51 of the piece 5 forms a pocket in conjunction with the upper surface of the top sheet 1 and functions as a barrier for stopping the liquid traveling from the center of the absorbent body 4 toward the longitudinal side edge thereof.

In the embodiment illustrated in FIGURE 1, the first portion 51 of the piece 5 has a length approximately equal to one-fourth to three-fourths of the

entire length of the absorbent body 4. That is, the first portion 51 can cover about one half to three-fourths of the entire length of the absorbent body 4. For the product specifically intended to prevent the rearward leakage of the body liquid, the first portion 51 of the piece 5 has a length of about two thirds of the length of the absorbent body 4 so as to reach the rear end of the absorbent body 4, as shown in FIGURE 3.

In the arrangements illustrated in FIGURES 1 and 3, part of the first portion 51 of the piece 5 may be folded back along the inner edge portion as shown in FIGURES 4 and 5, thereby to form a folded portion 10 within which an elastic member such as rubber thread 11 is disposed. The rubber thread 11 is securely fitted at both ends thereof to the piece 5 with being slightly stretched. If desired, the entire length of the elastic member may be bonded under a slightly stretched condition to the folded portion 10 of the piece 5.

The rubber thread 11 causes the first portion 51 of the piece 5 standing up above the upper surface of the top sheet 1 when the absorbent body 4 is curved along the configuration of the wearer, thereby to achieve an extremely excellent effect of preventing the lateral leakage of body liquid.

In the absorbent product of the present invention, the pieces 5 are disposed on the liquid-permeable top sheet 1 of the absorbent body 4, that is, the side which faces the wearer's body. And, the second portion 52 of each piece 5 extends from the edge of the absorbent body 4, and serves as a wing. Upon wearing, as in the normal winged absorbent product, the second portions 52 or wings may be folded back over part of the underwear and fixed to the underwear at the outside or connected to each other.

In order to facilitate such fitting, a layer of a suitable pressure-sensitive adhesive (not shown) is provided at each top end portion of the second portion 52 and a peel-off sheet (not shown) temporarily attached thereon.

The piece 5 having the shape as shown in FIGURE 1 or 3 has a sufficient effect of preventing lateral leakage, even when it has a small area. This means that the amount of material to be used can be remarkably reduced, and also eliminate the portions of the material, when the pieces 5 are cut out from the continuous sheet material.

FIGURE 6 illustrates cutting lines depicted by 21 and 22 for cutting out the pieces 5 from a continuous sheet material 20 for use in the absorbent product shown in FIGURE 1. As can be seen from this figure, the cutting line 21 forms a substantially sine curve at the central portion of the sheet material, and each of the cutting lines 22 extends perpendicularly to the longitudinal direction

and connects each peak of the cutting line 21 to both side edges. Therefore, it is possible that pairs of the pieces 5 is obtained at both sides of the sheet material 20 with no substantial portion to be wasted.

The pieces 5 having a structure as shown in FIGURES 4 and 5 may be formed by using a continuous sheet material 30 shown in FIGURE 7. The sheet material 30 comprises a pair of folded portions 10 at both side edges to form narrow passages through which rubber threads 11 are disposed under stretched condition. By cutting this sheet material 30 along the cutting lines 21 and 22 as described with reference to FIGURE 6, pieces 5 with rubber thread can be obtained. With the respective piece 5, the rubber thread 11 may be secured at both ends thereof in advance to the cutting by means of heat seal.

As has been described above, it will be understood that various modifications and variations can be effected without departing from the scope of the present invention.

#### Claims

1. An absorbent product comprising:
  - an absorbent body (4) comprising a liquid-permeable top sheet (1), a liquid-impermeable back sheet (2) and an absorbent material (3) accommodated between said top and back sheets; and
  - a pair of pieces (5) comprising a liquid-impermeable sheet and disposed on the top sheet at both side edges of the absorbent body;
  - each of the pieces (5) comprising a first portion (51) disposed on the top sheet and extending along part of the both side edges of the absorbent body to form a side barrier and a second portion (52) extending outwardly from the longitudinal side edges to form a wing, and being secured to the absorbent body at a connecting zone (6) extending along the boundary between the first and second portions.
2. The absorbent product according to claim 1 wherein the second portion (52) of the piece (5) has a length of about one half of that of the absorbent body (4) and disposed at the substantially central portion of the longitudinal side edges of the absorbent body.
3. The absorbent product according to claim 1 wherein the first portion (51) of the piece (5) has a length of about two third of that of the absorbent body (4), and one end of the first portion reaches near the rear end of the absor-

bent body.

4. The absorbent product according to any of the claims 1 to 3 wherein a elastic material (11) is attached to the inner edge of the first portion (51) of the piece (5) under stretch condition.
5. A sanitary napkin formed of the absorbent product according to any one of claims 1 to 4.
6. A method of making the sanitary napkin according to claim 1 wherein the piece (6) is cut out from a continuous sheet material (20, 30) along a first cutting line (21) and a second cutting lines (22), the first cutting line extending along the longitudinal direction at the central portion of the sheet material to form a generally sine curve, and each of the second cutting lines extending perpendicularly to the side edges of the sheet material to connect the respective peak of the first cutting line to the side edge of the sheet material.

FIG. 1

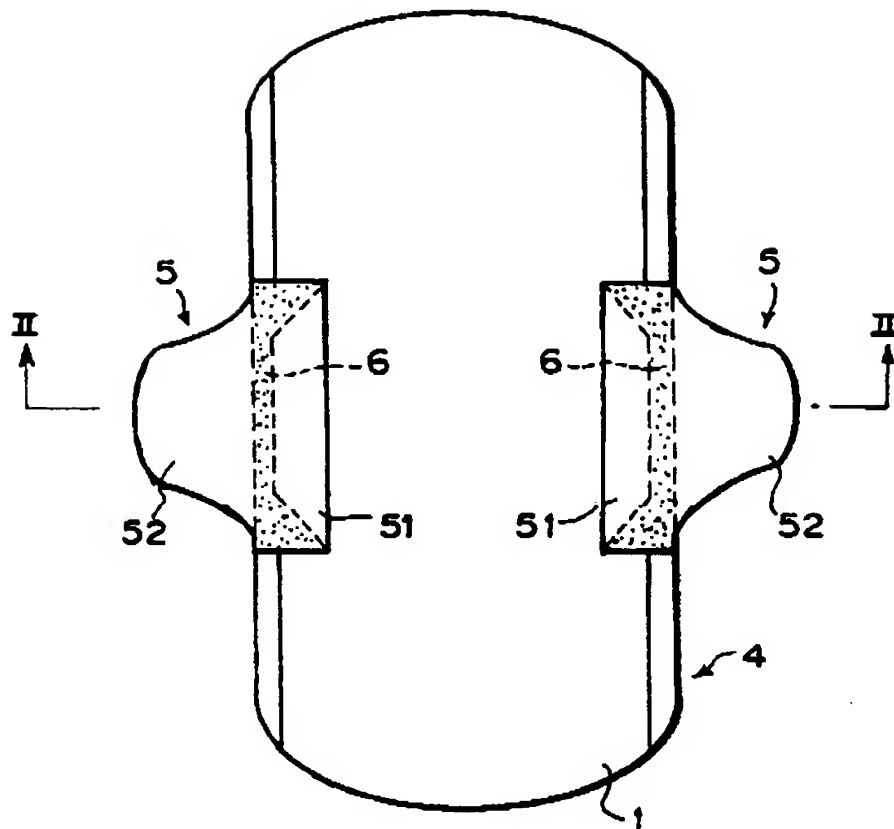


FIG. 2

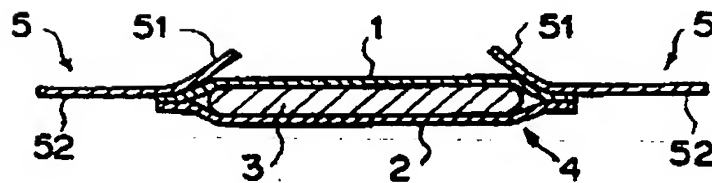


FIG. 3

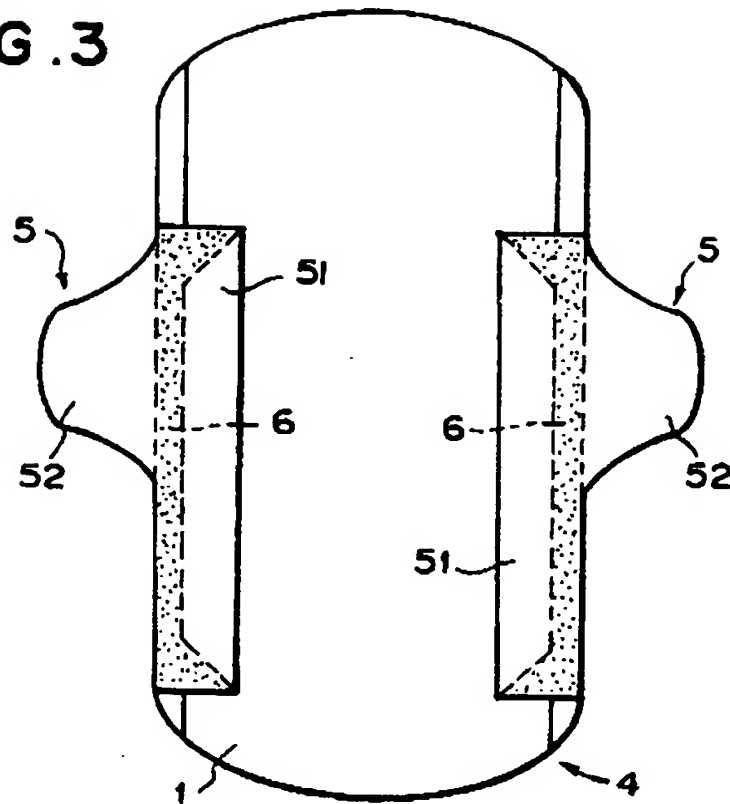


FIG. 4

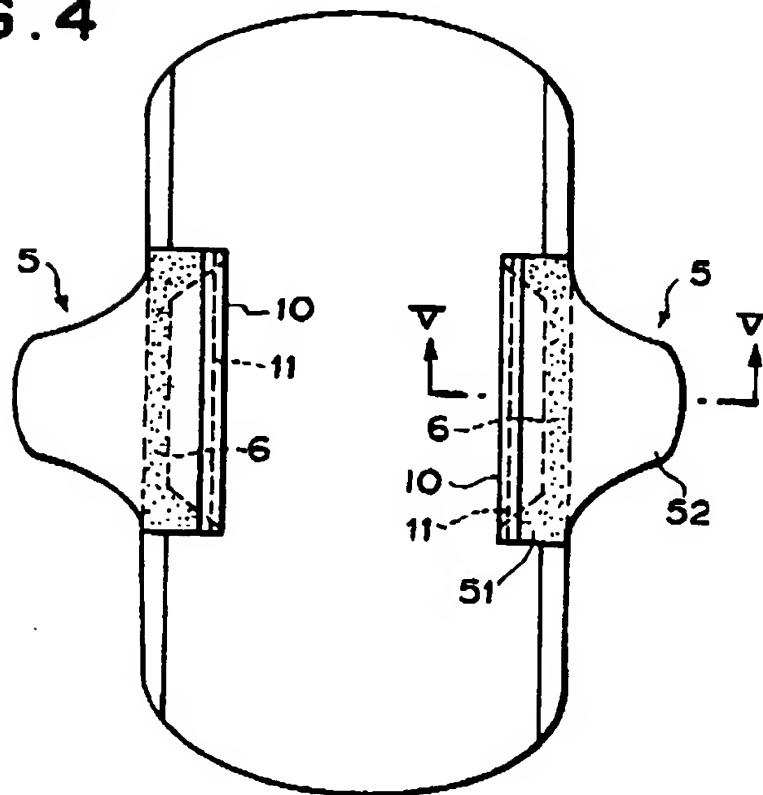




FIG. 5

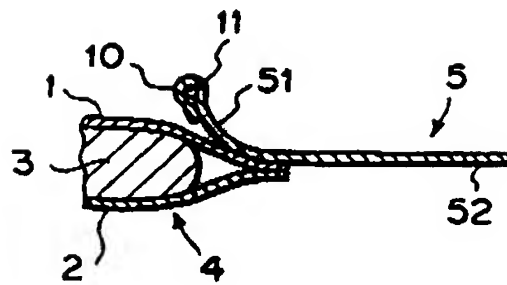


FIG. 6

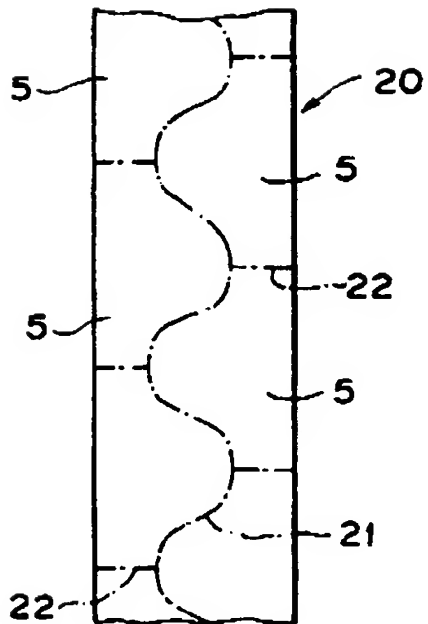
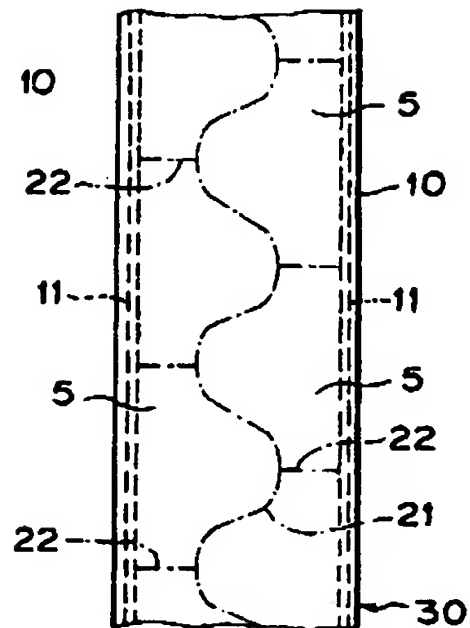


FIG. 7





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# EUROPEAN SEARCH REPORT

Application Number

DOCUMENTS CONSIDERED TO BE RELEVANT			EP 93112036.4
Category	Citation of document with indication, where appropriate, of relevant passages	Relevant to claim	CLASSIFICATION OF THE APPLICATION (Int. Cl. 5)
D, A	PATENT ABSTRACTS OF JAPAN, unexamined applications, C section, vol. 15, no. 425, October 29, 1991, THE PATENT OFFICE JAPANESE GOVERNMENT page 57 C 879 * No. 03-176 050 (KAO CORP) *	1, 2, 5	A 61 F 13/15
A	EP - A - 0 479 442 (MCNEIL-PPC, INC.) * Claims 1, 9, 19, 22, 25; fig. 29 *	1, 2, 5, 6	
A	GB - A - 2 143 439 (THE PROCTER & GAMBLE COMPANY) * Abstract *	1, 2, 5	
A	US - A - 4 285 343 (MCNAIR) * Abstract *	1, 3, 5	TECHNICAL FIELDS SEARCHED (Int. Cl. 5)
A	US - A - 4 608 047 (MATTINGLY) * Abstract *	1, 2, 5	A 61 F
A	US - A - 4 904 251 (IGAUE) * Abstract *	1, 2, 4	
The present search report has been drawn up for all claims			
Place of search VIENNA		Date of completion of the search 08-11-1993	Examiner SCHÄFER
<b>CATEGORY OF CITED DOCUMENTS</b> N : particularly relevant if taken alone V : particularly relevant if combined with another document of the same category A : technological background O : non-written disclosure P : intermediate document I : theory or principle underlying the invention E : earlier patent document, but published on, or after the filing date D : document cited in the application L : document cited for other reasons & : member of the same parent family, corresponding document			